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Lee et al.

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(54) **DEVICE AND METHOD FOR SEARCHING FOR AN E-BOOK VIA E-BOOK CATEGORIES IN A VIRTUAL BOOKSHELF IN A PORTABLE TERMINAL**

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G06F 3/01	(2006.01)
G06F 3/0346	(2013.01)
G06F 3/0488	(2013.01)

(52) **U.S. Cl.**

CPC ***G06F 17/30017*** (2013.01); ***G06F 3/017*** (2013.01); ***G06F 3/0346*** (2013.01); ***G06F 3/04886*** (2013.01)

(58) **Field of Classification Search**

CPC ... G06F 3/0485; G06F 3/04842; G06F 3/017; G06F 3/04815; G06F 3/0483

USPC 715/776

See application file for complete search history.

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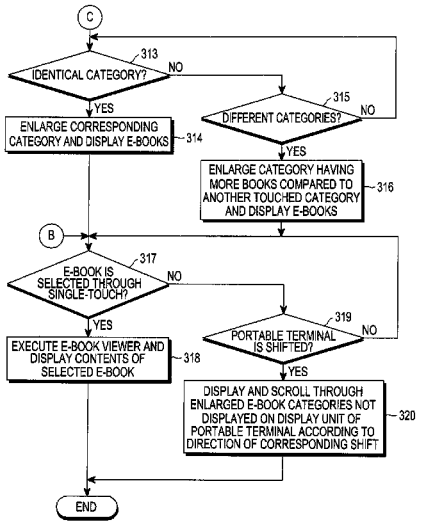
(57) **ABSTRACT**

A device and a method for searching for an electronic book (e-book) in a portable terminal are provided. More particularly, a device and a method for searching for an e-book in a portable terminal, which can conveniently manage and search for a plurality of e-books in a portable terminal, are provided. The device includes a display unit for displaying categories of e-books that each include one or more e-books, and a controller for controlling such that an e-book is searched for by displaying and scrolling through the categories of e-books according to a detected shift of the portable terminal, a corresponding category is enlarged according to a touch to the corresponding category, and at least one of the one or more e-books included in the enlarged category is displayed.

18 Claims, 11 Drawing Sheets



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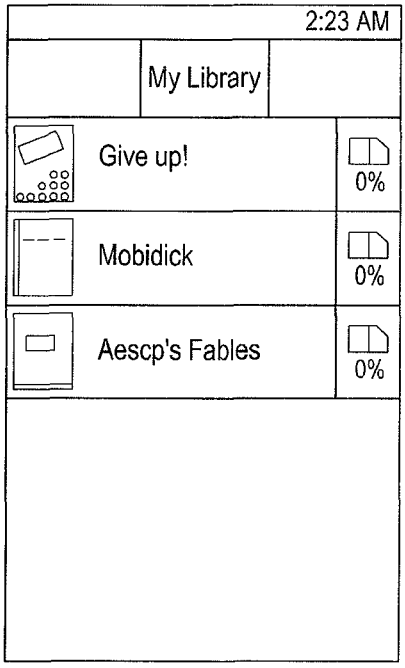

FIG.1A
(RELATED ART)

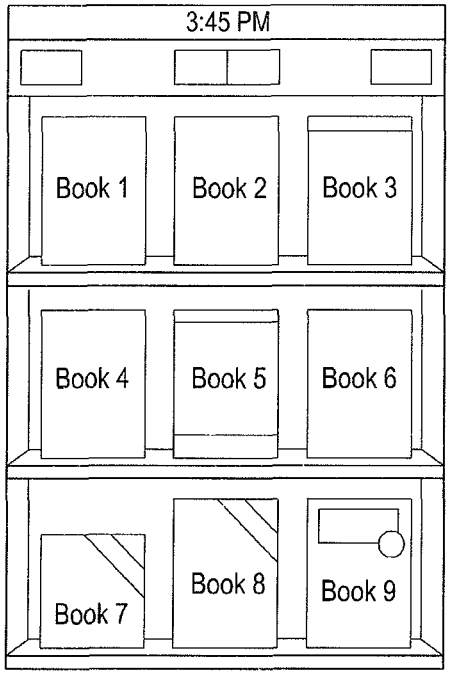

FIG.1B
(RELATED ART)

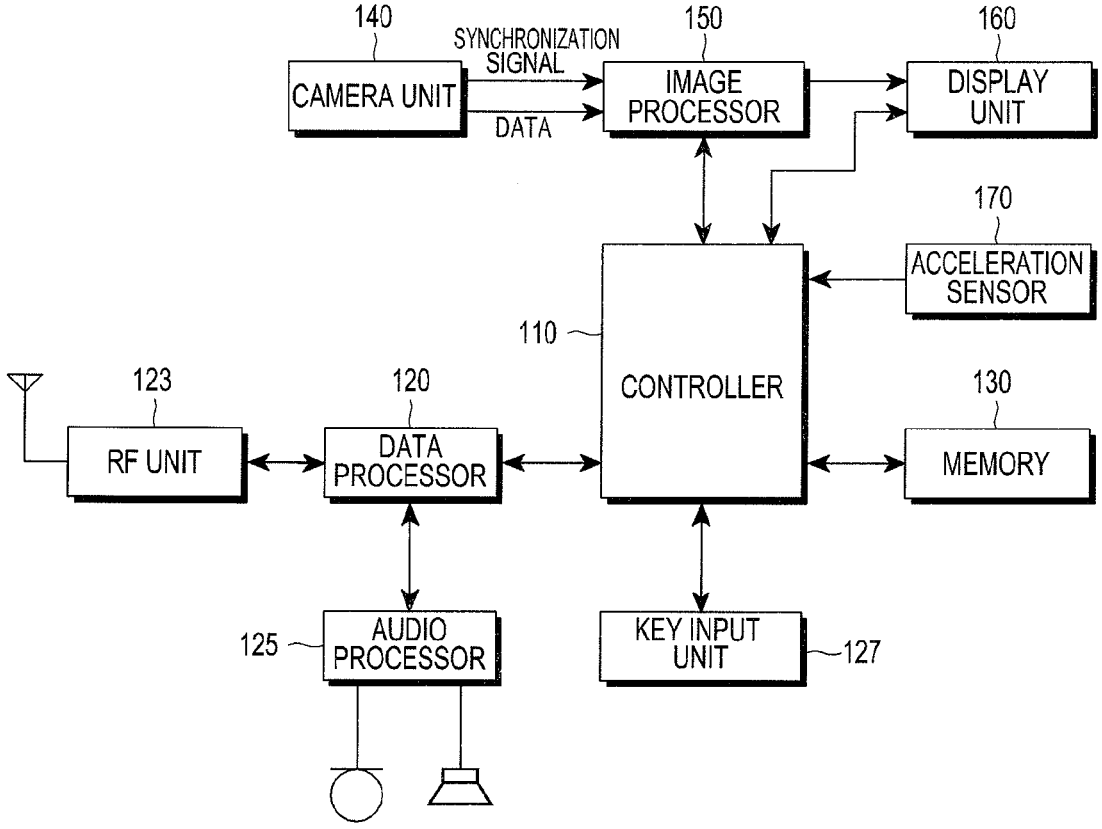
140
CAMERA UNIT
SYNCHRONIZATION SIGNAL
DATA
150
IMAGE PROCESSOR
160
DISPLAY UNIT
170
ACCELERATION SENSOR
110
CONTROLLER
123
RF UNIT
120
DATA PROCESSOR
130
MEMORY
125
AUDIO PROCESSOR
KEY INPUT UNIT
127

FIG.2

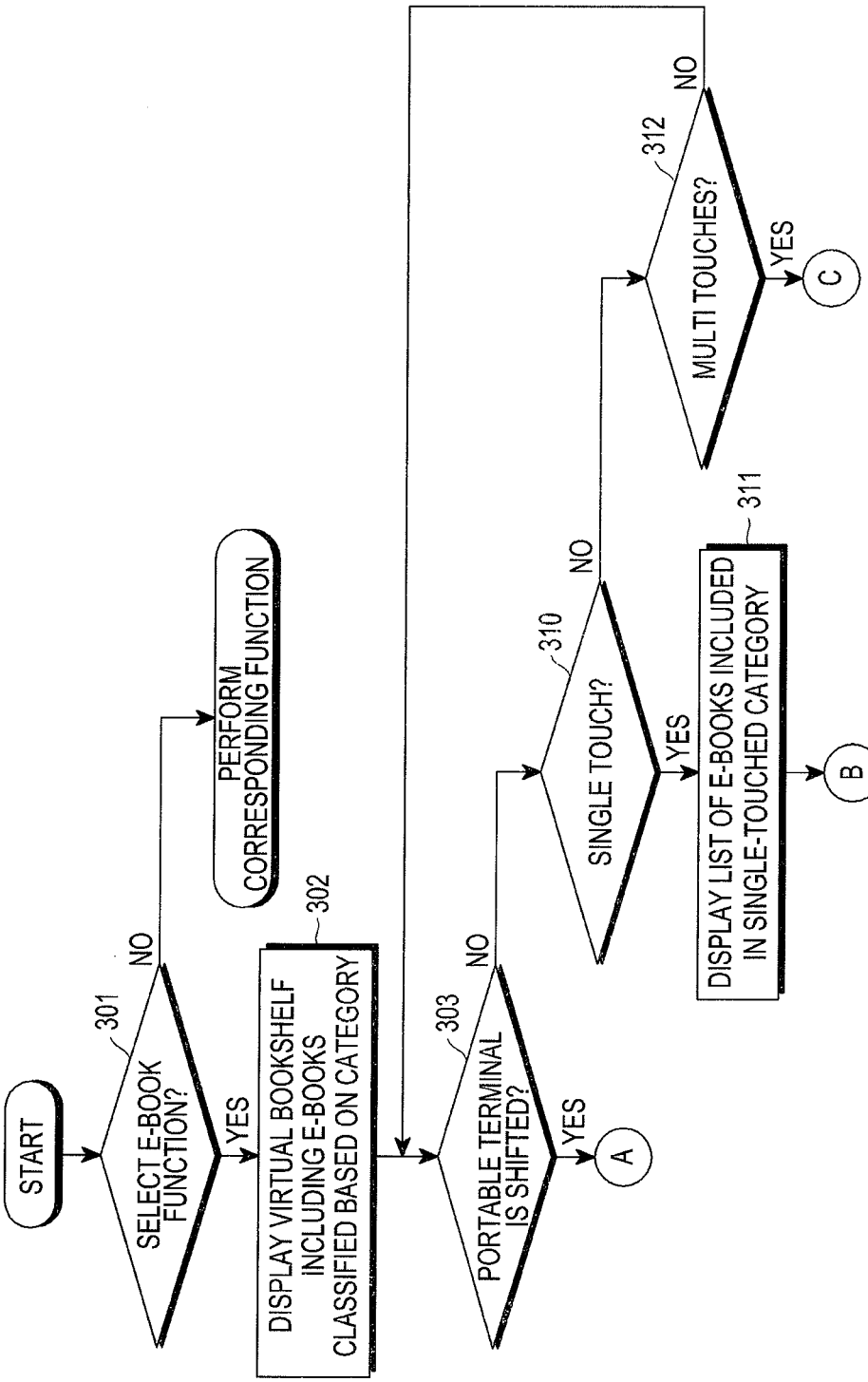
START
SELECT E-BOOK FUNCTION?
301
NO
YES
PERFORM CORRESPONDING FUNCTION
DISPLAY VIRTUAL BOOKSHELF INCLUDING E-BOOKS CLASSIFIED BASED ON CATEGORY
302
PORTABLE TERMINAL IS SHIFTED?
303
NO
YES
A
SINGLE TOUCH?
310
NO
YES
DISPLAY LIST OF E-BOOKS INCLUDED IN SINGLE-TOUCHED CATEGORY
311
B
MULTI TOUCHES?
312
NO
YES
C

FIG.3A

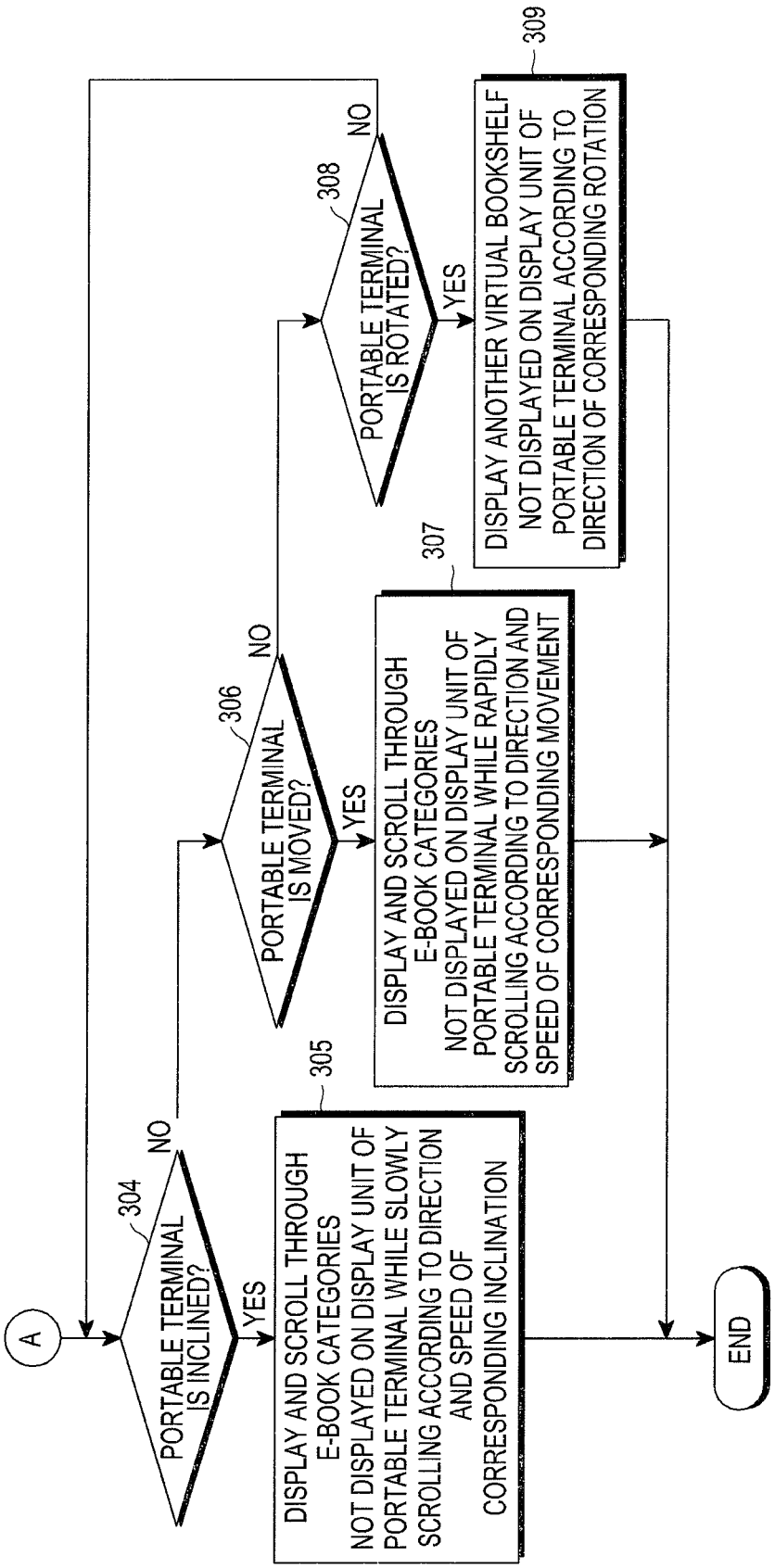
A
304
PORTABLE TERMINAL IS INCLINED?
NO
YES
305
DISPLAY AND SCROLL THROUGH E-BOOK CATEGORIES NOT DISPLAYED ON DISPLAY UNIT OF PORTABLE TERMINAL WHILE SLOWLY SCROLLING ACCORDING TO DIRECTION AND SPEED OF CORRESPONDING INCLINATION
306
PORTABLE TERMINAL IS MOVED?
NO
YES
307
DISPLAY AND SCROLL THROUGH E-BOOK CATEGORIES NOT DISPLAYED ON DISPLAY UNIT OF PORTABLE TERMINAL WHILE RAPIDLY SCROLLING ACCORDING TO DIRECTION AND SPEED OF CORRESPONDING MOVEMENT
308
PORTABLE TERMINAL IS ROTATED?
NO
YES
309
DISPLAY ANOTHER VIRTUAL BOOKSHELF NOT DISPLAYED ON DISPLAY UNIT OF PORTABLE TERMINAL ACCORDING TO DIRECTION OF CORRESPONDING ROTATION
END

FIG.3B

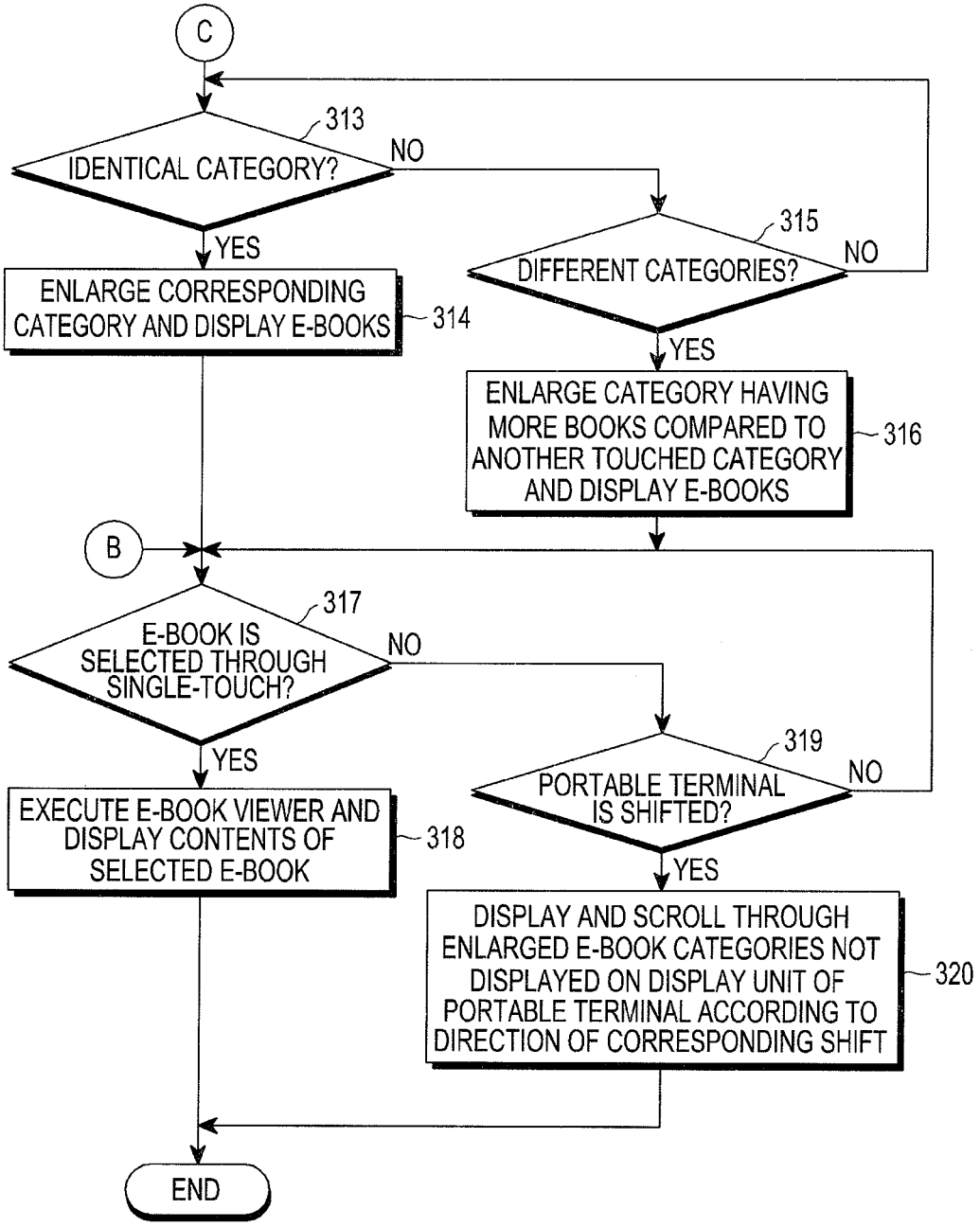
C
313
IDENTICAL CATEGORY?
NO
YES
315
DIFFERENT CATEGORIES?
NO
YES
ENLARGE CORRESPONDING CATEGORY AND DISPLAY E-BOOKS
314
ENLARGE CATEGORY HAVING MORE BOOKS COMPARED TO ANOTHER TOUCHED CATEGORY AND DISPLAY E-BOOKS
316
B
317
E-BOOK IS SELECTED THROUGH SINGLE-TOUCH?
NO
YES
319
PORTABLE TERMINAL IS SHIFTED?
NO
YES
EXECUTE E-BOOK VIEWER AND DISPLAY CONTENTS OF SELECTED E-BOOK
318
DISPLAY AND SCROLL THROUGH ENLARGED E-BOOK CATEGORIES NOT DISPLAYED ON DISPLAY UNIT OF PORTABLE TERMINAL ACCORDING TO DIRECTION OF CORRESPONDING SHIFT
320
END

FIG.3C

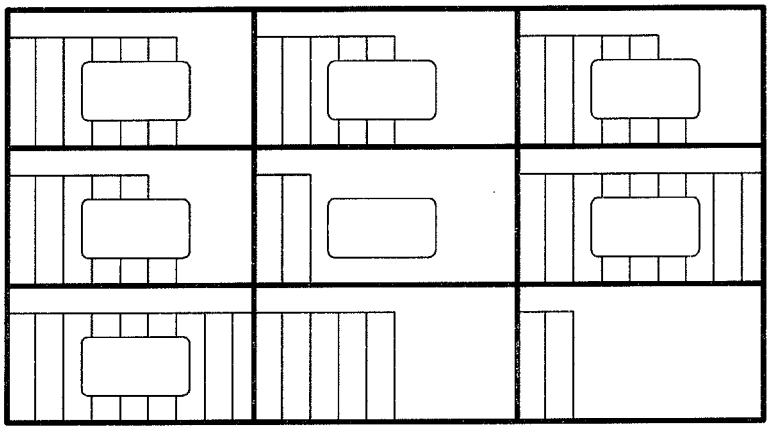

FIG.4A

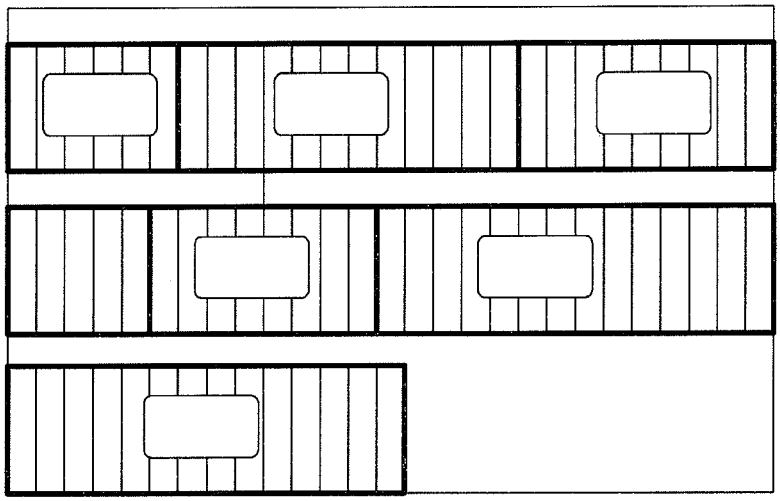

FIG.4B

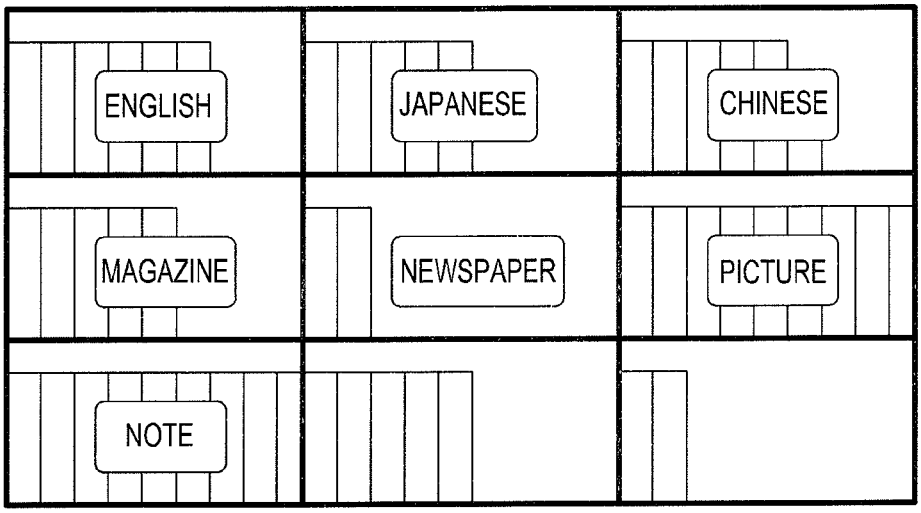
ENGLISH
JAPANESE
CHINESE
MAGAZINE
NEWSPAPER
PICTURE
NOTE

FIG.5

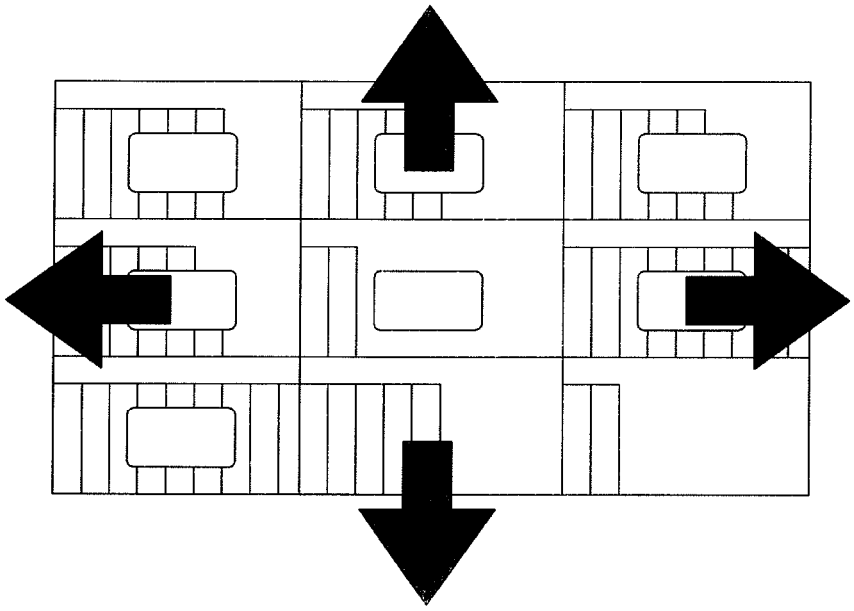

FIG.6A

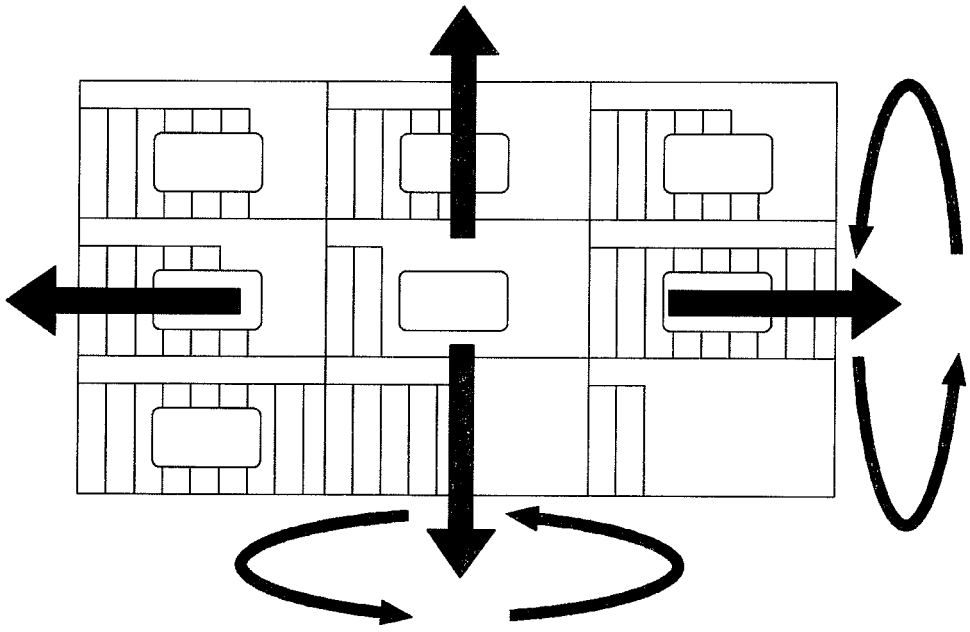

FIG.6B

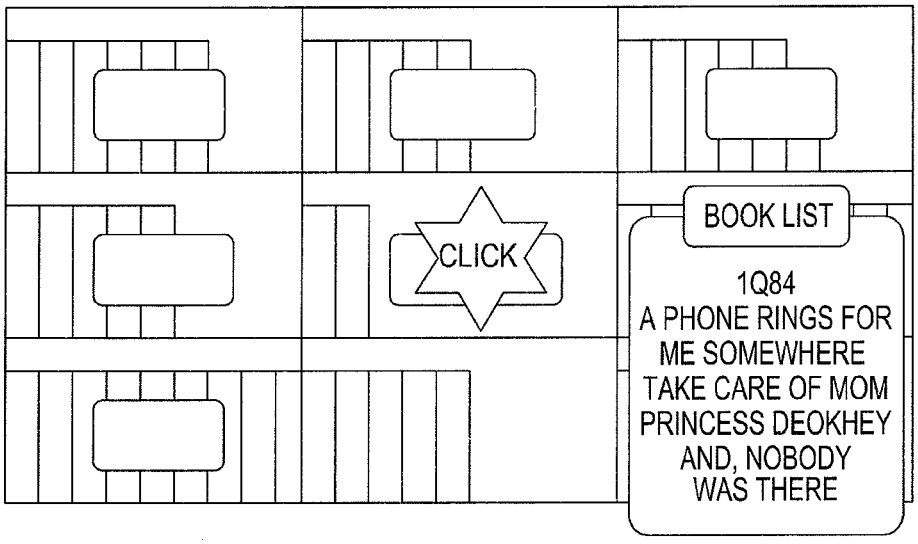
CLICK
BOOK LIST
1Q84
A PHONE RINGS FOR
ME SOMEWHERE
TAKE CARE OF MOM
PRINCESS DEOKHEY
AND, NOBODY
WAS THERE

FIG.7

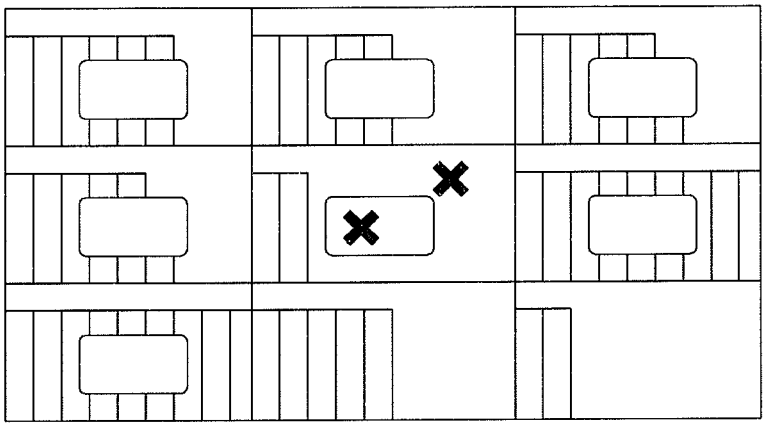

FIG.8A

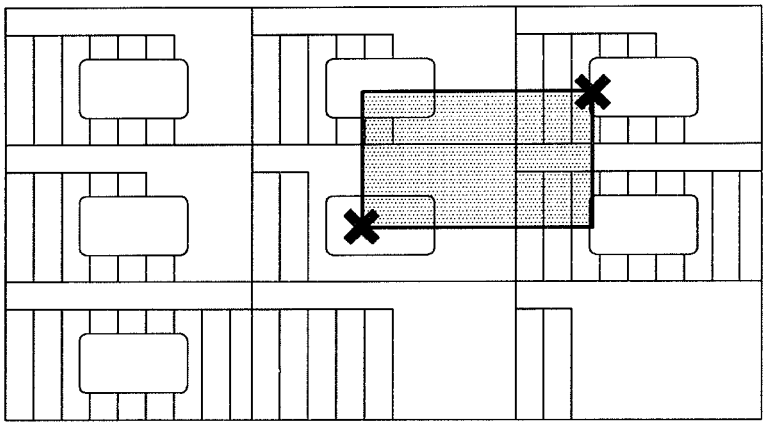

FIG.8B

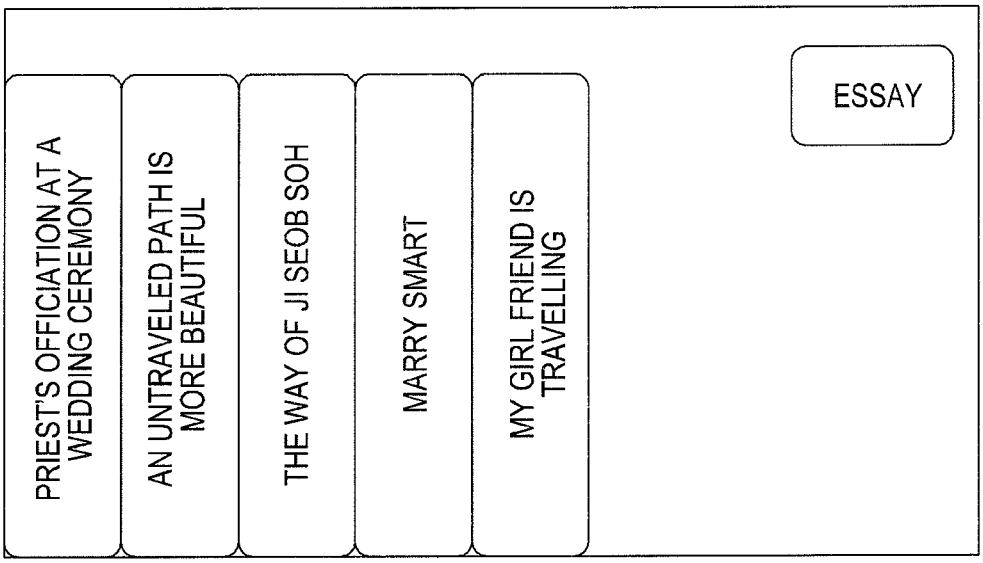
ESSAY
PRIEST'S OFFICIATION AT A WEDDING CEREMONY
AN UNTRAVELED PATH IS MORE BEAUTIFUL
THE WAY OF JI SEOB SOH
MARRY SMART
MY GIRL FRIEND IS TRAVELLING

FIG.9

DEVICE AND METHOD FOR SEARCHING FOR AN E-BOOK VIA E-BOOK CATEGORIES IN A VIRTUAL BOOKSHELF IN A PORTABLE TERMINAL

PRIORITY

This application claims the benefit under 35 U.S.C. §119(a) of a Korean patent application filed in the Korean Industrial Property Office on Nov. 26, 2010 and assigned Serial No. 10-2010-0118581, the entire disclosure of which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a device and a method for searching for an electronic book (e-book) in a portable terminal. More particularly, the present invention relates to a device and a method for searching for an e-book in a portable terminal, which can conveniently manage and search for a plurality of e-books in a portable terminal.

2. Description of the Related Art

Due to developments in internet technology and digital technology, books are now being published in a digital form. Books that are published in a digital form are referred to as an electronic book (e-book).

The e-book has a number of advantages. For example, the e-book does not consume publishing costs and publishing materials, such as a paper and an ink, there is no concern whether the e-book is in stock, and the price of the e-book is low due to there not being distribution costs. Accordingly, it is expected that the e-book will be widely used in the digital era. While the present market share of the e-book is considerably small, the number of published e-books has been increasing day by day. Thus, it is anticipated that the e-book will represent a considerable share in the future book market.

In addition to the advantages of the e-book as discussed above, the e-book has a characteristic in that when a revised edition is published, it is possible to separately print and publish the revised part, thereby addressing the inconvenience of having to buy a new paper book when a revised edition of an existing paper book is published. In addition, it is possible to provide a reader with a large amount of information with lower prices.

In order to use the e-book, the reader installs an e-book program in a computer and executes the e-book program whenever he/she desires to read the e-book. The e-book program can be installed in a Handheld Personal Computer (HPC), a palm Personal Computer (PC), and a portable device, such as a Personal Digital Assistant (PDA) and a portable terminal, as well as in a desktop computer and a notebook computer.

When the reader desires to read the e-book stored in a portable terminal in which the e-book program is installed, the reader generally searches for the corresponding e-book through a scrolling action.

FIGS. **1**A and **1**B are views illustrating an action for searching for an e-book in a portable terminal, according to the related art.

Referring to FIGS. **1**A and **1**B, the portable terminal displays e-books stored in the portable terminal without the specific categorization and the reader searches for the desired e-book through the scrolling action.

However, when the portable terminal stores a large number of e-books, the reader has to inconveniently perform the scrolling action numerous times in order to search for the desired e-book.

SUMMARY OF THE INVENTION

Aspects of the present invention are to address the above-mentioned problems and/or disadvantages and to provide at least the advantages described below. Accordingly, an aspect of the present invention is to provide a device and a method for searching for an electronic book (e-book) in a portable terminal, which can conveniently manage and search for a plurality of e-books in a portable terminal.

Another aspect of the present invention is to provide a device and a method for searching for an e-book in a portable terminal, which can provide a user of a portable terminal with an analog-like feeling.

In accordance with an aspect of the present invention, a device for searching for an e-book in a portable terminal is provided. The device includes a display unit for displaying categories of e-books that each include one or more e-books, and a controller for controlling such that an e-book is searched for by displaying and scrolling through the categories of e-books according to a detected shift of the portable terminal, a corresponding category is enlarged according to a touch to the corresponding category, and at least one of the one or more e-books included in the enlarged category is displayed.

In accordance with another aspect of the present invention, a method for searching for an e-book in a portable terminal is provided. The method includes displaying categories of e-books that each include one or more e-books, when the portable terminal is shifted, searching for an e-book by displaying and scrolling through the categories of e-books according to the shift of the portable terminal, and when a touch to a corresponding category is detected, enlarging the touched category and displaying at least one of the one or more e-books included in the enlarged category.

Accordingly, aspects of the present invention provide the device and the method for searching for the e-book in the portable terminal, so that it is possible to conveniently store and search for the e-book in the portable terminal and provide the user with an analog-like feeling.

Other aspects, advantages, and salient features of the invention will become apparent to those skilled in the art from the following detailed description, which, taken in conjunction with the annexed drawings, discloses exemplary embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other aspects, features, and advantages of certain exemplary embodiments of the present invention will be more apparent from the following description taken in conjunction with the accompanying drawings, in which:

FIGS. **1**A and **1**B are views illustrating an action for searching for an e-book in a portable terminal, according to the related art;

FIG. **2** is a block diagram illustrating a construction of a portable terminal, according to an exemplary embodiment of the present invention;

FIGS. **3**A to **3**C are a flowchart illustrating a process of searching for an e-book in a portable terminal, according to an exemplary embodiment of the present invention;

FIGS. **4**A and **4**B are views illustrating a type of virtual bookshelf of FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention;

FIG. **5** is a view illustrating a virtual bookshelf classified based on category of FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention;

FIGS. **6**A and **6**B are views illustrating scrolling through categories of e-books according to a shift of a portable terminal in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention;

FIG. **7** is a view illustrating an operation according to a single touch to a corresponding category in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention;

FIGS. **8**A and **8**B are views illustrating an operation according to multi-touches to at least one corresponding category in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention; and

FIG. **9** is a view illustrating an enlargement of a selected corresponding category in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention.

Throughout the drawings, it should be noted that like reference numbers are used to depict the same or similar elements, features, and structures.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENT

The following description with reference to the accompanying drawings is provided to assist in a comprehensive understanding of exemplary embodiments of the invention as defined by the claims and their equivalents. It includes various specific details to assist in that understanding but these are to be regarded as merely exemplary. Accordingly, those of ordinary skill in the art will recognize that various changes and modifications of the embodiments described herein can be made without departing from the scope and spirit of the invention. In addition, descriptions of well-known functions and constructions may be omitted for clarity and conciseness.

The terms and words used in the following description and claims are not limited to the bibliographical meanings, but, are merely used by the inventor to enable a clear and consistent understanding of the invention. Accordingly, it should be apparent to those skilled in the art that the following description of exemplary embodiments of the present invention is provided for illustration purpose only and not for the purpose of limiting the invention as defined by the appended claims and their equivalents.

It is to be understood that the singular forms "a," "an," and "the" include plural referents unless the context clearly dictates otherwise. Thus, for example, reference to "a component surface" includes reference to one or more of such surfaces.

FIG. **2** is a block diagram illustrating a construction of a portable terminal, according to an exemplary embodiment of the present invention.

Referring to FIG. **2**, a Radio Frequency (RF) unit **123** performs a wireless communication function of the portable terminal. The RF unit **123** includes an RF transmitter for up-converting and amplifying a frequency of a transmitted signal and an RF receiver for low-noise amplifying a received signal and down-converting a frequency. A data processor **120** includes a transmitter for encoding and modulating the transmitted signal and a receiver for demodulating and decoding the received signal. That is, the data processor **120** is formed with a modem and a codec. Here, the codec includes a data codec processing packet data, etc. and an audio codec processing an audio signal, such as a voice, etc. An audio processor **125** reproduces, through a speaker, a received audio signal output from the audio codec of the data processor **120** or transmits a transmitted audio signal generated by a microphone to the audio codec of the data processor **120**.

A key input unit **127** includes keys for inputting numbers and character information and functional keys for setting various types of functions.

A memory **130** can be formed with a program memory and a data memory. The program memory can store programs for controlling general operations of the portable terminal and programs for controlling such that electronic books (e-books) stored in the portable terminal are classified and displayed based on category through a virtual bookshelf.

A controller **110** performs a function of controlling general operations of the portable terminal.

The controller **110** controls such that the e-books that are classified based on category are displayed through the virtual bookshelf and the categories are classified and displayed according to book boxes of the virtual bookshelf, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that when the e-books are displayed based on category on the virtual bookshelf, the e-books included in each category are displayed together with a title of the corresponding category at a position of the corresponding category, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that sizes of the categories based on which the e-books are classified and displayed on the virtual bookshelf are all the same, or are variable according to the number of e-books included in each of the categories, according to an exemplary embodiment of the present invention. Herein, in one exemplary embodiment, each category of the e-books may not include a visual representation corresponding to the number of e-books included in the corresponding category. In another exemplary embodiment, each category of the e-books may include a visual representation for each e-book included in the corresponding category. In yet another exemplary embodiment, each category of the e-books may include a visual representation that is indicative of the number of e-books included in the corresponding category. In still another exemplary embodiment, the visual representation of the number of e-books included in a corresponding category may be indicative of the number of e-books included in the corresponding category relative to other categories.

Further, the controller **110** controls such that a user sets a corresponding category at a corresponding position and modifies or deletes the position and a title of the set corresponding category, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that an e-book is searched for by scrolling through the categories of the e-books on the virtual bookshelf that are displayed on the display unit of the portable terminal according to a shift of the portable terminal. The shift of the portable terminal may include at least one of an inclination, a movement, and a rotation of the portable terminal, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that an e-book is searched for by displaying and scrolling through categories of the e-books on the virtual bookshelf, which are not displayed on the display unit of the portable terminal when an inclination of the portable terminal is detected, according to a direction and a speed of the up, down, left, or right inclination detected in the portable terminal, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that an e-book is searched for by displaying and scrolling through categories of the e-books on the virtual bookshelf, which are not displayed on the display unit of the portable terminal when a movement of the portable terminal is detected, according to a direction and a speed of the up, down, left, or right movement detected in the portable terminal. Here, the displaying and scrolling through categories of the e-books may be faster when the displaying and scrolling is based on the movement of the portable terminal as compared to when the displaying and scrolling is based on the inclination of the portable terminal, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that when a rotation of the portable terminal is detected, another virtual bookshelf, which is not displayed on the display unit of the portable terminal when the rotation of the portable terminal is detected, is displayed according to a direction of the left, right or up, or down rotation, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that during the display of the categories of e-books on the virtual bookshelf, when a single-touch is detected to a category or a title of the category, a list of e-books included in the corresponding category is displayed as a pop-up window, and contents of an e-book selected by a single touch from the list of the e-books are displayed through an execution of an e-book viewer, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that when multi-touches to an identical category are detected during the display of the categories of the e-books on the virtual bookshelf, the corresponding category is enlarged, one or more of e-books included in the enlarged category are displayed, and the contents of an e-book selected from the e-books included in the enlarged category through a single touch are displayed through an execution of the e-book viewer, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that when multi-touches to two categories are detected during the display of the categories of the e-books on the virtual bookshelf, the category including the larger number of e-books is enlarged, one or more of e-books included in the enlarged category are displayed, and the contents of an e-book selected from one or more e-books by a single touch are displayed through an execution of the e-book viewer, according to an exemplary embodiment of the present invention.

Further, the controller **110** controls such that when the shift of the portable terminal is detected during the display of enlarged categories of the e-books, e-books that are not displayed on the display unit of the portable terminal are displayed enlarged and scrolled through according to a direction of the shift of the portable terminal, according to an exemplary embodiment of the present invention.

In this regard, the shift of the portable terminal includes at least one of the inclination and the movement, and the scrolling action of the e-books according to the inclination or the movement of the portable terminal is substantially identical to the scrolling of the e-books according to the shift of the portable terminal in the virtual bookshelf, according to an exemplary embodiment of the present invention.

An acceleration sensor **170** detects the shift, i.e. one or more of the inclination, the movement, and the rotation, of the portable terminal during the display of a virtual bookshelf, and transmits a detected signal to the controller **110**, according to an exemplary embodiment of the present invention.

Further, the acceleration sensor **170** detects the shift, i.e. one or more of the inclination, the movement, and the rotation, of the portable terminal during the enlargement and display of the corresponding category and transmits a detected signal to the controller **110**, according to an exemplary embodiment of the present invention.

A camera unit **140** photographs image data, and includes a camera sensor converting a photographed optical signal into an electrical signal, and a signal processor converting an analog image signal photographed by the camera sensor into digital data. The camera unit **140** may output the digital data and a synchronization signal to the image processor **150**. Here, it is assumed that the camera sensor is one of a Charge-Coupled Device (CCD) sensor and a Complementary Metal-Oxide-Semiconductor (CMOS) sensor, and the signal processor can be implemented with a Digital Signal Processor (DSP). Further, the camera sensor and the signal processor can be integrally implemented with each other or separately implemented from each other.

An image processor **150** performs an Image Signal Processing (ISP) for displaying an image signal output from the camera unit **140** on the display unit **160**, and the ISP performs a function, such as one or more of a gamma correction, interpolation, spatial change, image effect, image scale, Auto White Balance (AWB), Auto Exposure (AE), and Auto Focus (AF). The image processor **150** processes the image signal output from the camera unit **140** frame by frame and adjusts and outputs the frame-unit image data in accordance with a characteristic and a size of the display unit **160**. Further, the image processor **150** includes an audio codec, and performs a function of compressing frame image data displayed on the display unit **160** in accordance with a set scheme or restoring the compressed frame image data to original frame image data. Here, the image codec includes a Joint Photographic Experts Group (JPEG) codec, a Moving Picture Experts Group (MPEG)-4 codec, a Wavelet codec, etc. The image processor **150** is assumed to have the On Screen Display (OSD) function and can output OSD data according to a size of a screen displayed under the control of the controller **110**.

The display unit **160** displays an image signal output from the image processor **150** on a screen and user data output from the controller **110**. Here, the display unit **160** can be implemented with a Liquid Crystal Display (LCD), an Active Matrix Organic Light Emitting Diode (AMOLED), etc., and the display unit **160**, in this case, can include a display controller, a memory capable of storing image data, a display device, etc. Here, when one of the LCD, AMOLED, etc. is implemented in a touch screen scheme, the one of the LCD, AMOLED, etc. that is implemented can function as an input unit, and in this regard, one or more of the keys of the input unit **127** can be displayed on the display unit **160**.

Further, the display unit **160** displays the e-books classified based on category on the virtual bookshelf, according to an exemplary embodiment of the present invention.

An operation of searching for an e-book in the portable terminal as described above will be described below with reference to FIGS. **3**A to **9** in additional detail.

FIGS. **3**A to **3**C are a flowchart illustrating a process of searching for an e-book in a portable terminal, according to an exemplary embodiment of the present invention. FIGS. **4**A and **4**B are views illustrating a type of virtual bookshelf of FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention. FIG. **5** is a view illustrating a virtual bookshelf classified based on category in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention. FIGS. **6**A and **6**B are views illustrating scrolling through categories of e-books according to a shift of a portable termi-

nal according to FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention. FIG. **7** is a view illustrating an operation according to a single touch to a corresponding category in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention. FIGS. **8**A and **8**B are views illustrating an operation according to multi-touches to at least one corresponding category in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention. FIG. **9** is a view illustrating an enlargement of a selected corresponding category in FIGS. **3**A to **3**C, according to an exemplary embodiment of the present invention.

Referring to FIGS. **3**A to **3**C, when an e-book function is not selected, the portable terminal performs a corresponding function. In contrast, when an e-book function is selected in the portable terminal, the controller **110** detects the selection in step **301** and displays a virtual bookshelf on which the e-books are classified based on category in step **302**.

Categories on the virtual bookshelf may be discriminated according to respective book boxes on the virtual bookshelf. Each category can be set at a corresponding location, i.e. a corresponding book box, by the user. The position and a title of each set corresponding category can be at least one of added, modified, and deleted by the user.

Further, when the user of the portable terminal purchases a new e-book, the user can manually designate the new e-book at a position of a corresponding category or the new e-book can be automatically designated for a corresponding category based on information of the new e-book and displayed at a position of the corresponding category.

Further, the category can be designated for each book box by the user one by one or classified based on one or more of a sequence of publication time, a sequence of character order, a sequence of purchase time, or a theme by the user.

The virtual bookshelf displayed in step **302** can be displayed as a fixed type or an array type of virtual bookshelf. Referring to FIG. **4**A, the fixed type virtual bookshelf is illustrated, in which same-sized categories are displayed regardless of the number of e-books. Therefore, when the number of e-books is larger than a maximum number of e-books that can be displayed in a single category, the remainder may be displayed in a next category.

Referring to FIG. **4**B, an array type virtual bookshelf is illustrated, in which the sizes of categories for displaying the e-books can be flexibly changed according to the number of stored books.

In step **302**, a size of the virtual bookshelf is displayed identically to a screen size of the display unit **160**, the sizes of the e-books can be identically displayed, and a title can be displayed for each of the e-books. Alternatively, the size of the virtual bookshelf may be larger or smaller than the screen size of the display unit **160**.

Further, in step **302**, when the e-books classified based on category are displayed on the virtual bookshelf, a title of a corresponding category can be displayed so as to be visually associated with the corresponding category. For example, the title of a corresponding category may be displayed in the corresponding category, centered about the corresponding category, or mostly located in the corresponding category. Referring to FIG. **5**, each of the titles is displayed on the virtual bookshelf within the categories based on which the e-books are classified.

When the portable terminal shifts during the display of the e-books classified based on category on the virtual bookshelf in step **302**, the controller **110** detects the shift of the portable terminal and determines a type of shift of the portable terminal in step **303**.

Referring to FIG. **3**B, when the shift of the portable terminal corresponds to an inclination, the acceleration sensor **170** detects the inclination of the portable terminal and transmits a detection signal for a direction and a speed of the inclination of the portable terminal to the controller **110** in step **304**.

Based on the detection signal received from the acceleration sensor **170**, the controller **110** performs step **305**, in which the controller **110** displays and scrolls through categories of e-books, which are not displayed on the display unit **160** when the detection signal is received from the acceleration sensor **170**, while slowly scrolling in accordance with the direction and the speed of the corresponding up, down, left, or right inclination.

Referring to FIG. **6**A, an operation of scrolling through categories of e-books according to the detected inclination of the portable terminal is illustrated.

Further, when the shift of the portable terminal corresponds to a movement, the acceleration sensor **170** detects the movement and transmits a detection signal for a direction and a speed of the movement of the portable terminal to the controller **110** in step **306**.

Based on the detection signal received from the acceleration sensor **170**, the controller **110** performs step **307**, in which the controller **110** displays and scrolls through categories of e-books, which is not displayed on the display unit **160** when the detection signal is received from the acceleration sensor **170**, while rapidly scrolling according to the direction and the speed of the corresponding up, down, left, or right movement of the portable terminal. Here, the displaying and scrolling through categories based on the movement of the portable terminal is faster than the displaying and scrolling through categories based on the inclination of the portable terminal.

Further, when the shift of the portable terminal corresponds to a rotation, the acceleration sensor **170** detects the rotation and transmits a detection signal for a direction and speed of the rotation of the portable terminal to the controller **110** in step **308**.

Based on the detection signal received from the acceleration sensor **170**, the controller **110** performs step **309**, in which the controller **110** displays e-books classified based on category on another virtual bookshelf positioned on an opposite side, which is not displayed on the display unit **160** when the detection signal is received from the acceleration sensor **170**, according to a direction of the corresponding left, right, up or down rotation.

Referring to FIG. **6**B, the operation of scrolling through categories of e-books according to the movement and the rotation direction of the portable terminal is illustrated.

Again, during the display of the virtual bookshelf in step **302**, when the corresponding category or a title of the corresponding category is single-touched, the controller **110** detects the single touch in step **310**, and displays a list of the e-books included in the single-touched category in a form of a pop-up window in step **311**.

Referring to FIG. **7**, an operation of the enlargement and the display of the list included in the single-touched category in a form of a pop-up window according to the detection of the single touch to the title of the corresponding category is illustrated.

When an e-book is selected from the list of the e-books through a single touch during the display of the list of the e-books in step **311**, the controller **110** detects the single touch in step **317** of FIG. **3**C and displays contents of the selected e-book through an execution of an e-book viewer in step **318**.

Otherwise, when multi-touches are detected during the display of the virtual bookshelf in step **302**, the controller detects the multi-touches in step **312** and determines the number of multi-touched categories in step **312**.

When the multi-touches are all detected in the same category as shown in FIG. **8**A, the controller **110** detects the multi-touches in step **313** of FIG. **3**C, enlarges the corresponding category to a same or different size as the screen size, and displays one or more e-books included in the corresponding category in step **314**.

However, when the multi-touches are detected in two or more different categories as shown in FIG. **8**B, the controller **110** detects the multi-touches in step **315**, enlarges a category including the largest number of e-books among the multi-touched categories to a same or different size as the screen size of the display unit **160**, and displays one or more e-books included in the corresponding category in step **316**.

In one exemplary implementation, when the multi-touches are detected in two different categories as shown in FIG. **8**B, four categories are selected. Therefore, the controller **110** enlarges and displays a category including the largest number of e-books compared to the three other touched categories to a same or different size as the screen size of the display unit **160**. Further, in one exemplary implementation, when four or more categories are selected through the multi-touches, the controller **110** nullifies the multi-touches and makes the user reselect the category.

Referring to FIG. **9**, an operation of the enlargement and the display of the category selected through the multi-touches is illustrated.

When an e-book is selected through the single touch during the enlargement of the corresponding category and the display of the e-books included in the corresponding category in step **314** or step **316**, the controller **110** detects the selection of the e-book in step **317**, and displays contents of the selected e-book through the execution of the e-book viewer in step **318**.

Otherwise, when the portable terminal shifts during the enlargement of the corresponding category and the display of the e-books included in the corresponding category in step **314** or step **316**, the acceleration sensor **170** detects the shift of the portable terminal in step **319** and transmits a detection signal for a direction and a speed of the shift of the portable terminal to the controller **110**. Then, the controller **110** performs step **320**, in which the controller **110** displays and scrolls through enlarged categories of e-books, which are not displayed on the display unit **160** when the shift of the portable terminal is detected, according to the direction and the speed of the corresponding shift, so that the e-books included in the different categories are displayed.

The shift of the portable terminal in steps **319** and **320** includes the inclination and the movement of the portable terminal, and the operations of scrolling through the different categories according to the inclination and the movement of the portable terminal are the substantially the same as steps **304** to **307** of FIG. **3**B.

In the exemplary embodiments of the present invention, it is exemplified that the e-books are classified and displayed based on category through the virtual bookshelf, but all virtual articles, in addition to the virtual bookshelf, capable of displaying e-books classified based on category can be adopted to the present invention.

While the invention has been shown and described with reference to certain exemplary embodiments and drawings thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims and their equivalents.

What is claimed is:

1. A device for searching for an electronic book (e-book) in a portable terminal, the device comprising:

a display unit configured to display categories of e-books that each include one or more e-books; and

a controller configured to:

search for a category by displaying and scrolling through the categories of e-books in any direction according to a detected kind of shift of the portable terminal,

detect a corresponding category of the categories of e-books according to a touch by a user,

display at least one of the one or more e-books included in the detected category, and

scroll e-books corresponding to the detected category in any direction according to a detected kind of shift of the portable terminal after displaying at least one of the one or more e-books included in the detected category,

wherein the detected kind of shift of the portable terminal includes at least one of an inclination, an up, down, left or right movement, and a rotation of the portable terminal,

wherein, when two or more categories are selected through a multi-touch, a category having a largest number of e-books among the categories selected through the multi-touch is enlarged and each e-book included in the enlarged category is displayed, and

wherein contents of an e-book selected by a single touch from the e-books included in the enlarged category are displayed through an execution of the e-book viewer.

2. The device as claimed in claim **1**,

wherein the categories of e-books are displayed on a virtual bookshelf, and

wherein each category is separately displayed using a book box on the virtual bookshelf.

3. The device as claimed in claim **1**,

wherein the user sets a corresponding category at a corresponding position, and

wherein the position and a title of the set corresponding category is modified or deleted by the user.

4. The device as claimed in claim **1**, wherein a title of a corresponding category being displayed at a position of the corresponding category.

5. The device as claimed in claim **1**, wherein a size of each category is the same or is varied according to a number of the one or more e-books included in the respective category.

6. The device as claimed in claim **1**,

wherein, when an inclination or a movement of the portable terminal is detected, categories of e-books, which are not displayed on the display unit when the inclination or movement is detected, are displayed and scrolled through according to a direction and a speed of the corresponding detected inclination or movement of the portable terminal, and

wherein the speed at which the e-books are displayed according to the detected movement of the portable terminal is greater than the speed at which the e-books are displayed according to the detected inclination of the portable terminal.

7. The device as claimed in claim **1**, wherein, when a rotation of the portable terminal is detected, different categories of e-books, which are not displayed on the display unit of

the portable terminal when the rotation is detected, are displayed according to a direction of the detected rotation of the portable terminal.

8. The device as claimed in claim **1**,

wherein a list of e-books included in a single-touched corresponding category or a title of the corresponding category is displayed, and

wherein contents of an e-book selected from the list of e-books by a single touch are displayed through an execution of an e-book viewer.

9. The device as claimed in claim **1**,

wherein, when one category is selected through a multi-touch, the selected category is enlarged and at least one of the one or more e-books included in the enlarged category is displayed, and

wherein contents of an e-book selected from among the e-books included in the enlarged category by a single touch are displayed through an execution of an e-book viewer.

10. The device as claimed in claim **9**, wherein, when a shift of the portable terminal is detected during the display of at least one of the one or more e-books included in the detected category, different categories of e-books, which are not displayed on the display unit of the portable terminal prior to the shift of the portable terminal being detected, are displayed and scrolled through according to a direction of the detected shift of the portable terminal.

11. A method for searching for an electronic book (e-book) in a portable terminal, the method comprising:

displaying categories of e-books that each includes one or more e-books;

searching, when the portable terminal is shifted, for a category by displaying and scrolling through the categories of e-books in any direction according to a detected kind of shift of the portable terminal;

displaying, when a corresponding category of the categories of e-books according to a touch by a user is detected, at least one of the one or more e-books included in the detected category;

scrolling e-books corresponding to the detected category in any direction according to the detected kind of shift of the portable terminal after displaying at least one of the one or more e-books included in the detected category; and

enlarging the touched category,

wherein the enlarging of the touched category and the displaying of the at least one of the one or more e-books comprises:

identifying, when multi-touches to one or more categories are detected, a number of multi-touched one or more categories;

enlarging, when the multi-touches to one category are detected, the one category;

enlarging, when the multi-touches to two or more categories are detected, a category having the largest number of e-books among the multi-touched categories;

displaying at least one of the one or more e-books included in the enlarged category; and

displaying, when an e-book is selected by a single touch during the displaying of the e-books included in the enlarged category, the selected e-book through an execution of an e-book viewer, and

wherein the detected kind of shift of the portable terminal includes at least one of an inclination, an up, down, left or right movement, and a rotation of the portable terminal.

12. The method as claimed in claim **11**, wherein the categories of e-books are displayed on a virtual bookshelf, and each category is separately displayed using a book box on the virtual bookshelf.

13. The method as claimed in claim **11**, further comprising:

setting a corresponding category at a corresponding position by the user; and

modifying or deleting the position and a title of the set category according to a selection of the user.

14. The method as claimed in claim **11**, further comprising displaying a title of a corresponding category at a position of the corresponding category.

15. The method as claimed in claim **11**, wherein a size of each category is the same or is varied according to a number of the one or more e-books included in the respective category.

16. The method as claimed in claim **11**, wherein the searching for the e-book by displaying and the scrolling through the categories of e-books comprises:

displaying, when an inclination of the portable terminal is detected, and scrolling through categories of e-books, which are not displayed on the display unit of the portable terminal when the inclination of the portable terminal is detected, according to a direction and a speed of the detected inclination of the portable terminal;

displaying, when a movement of the portable terminal is detected, and scrolling through categories of e-books, which are not displayed on the display unit of the portable terminal when the movement of the portable terminal is detected, according to a direction and a speed of the detected movement of the portable terminal, wherein the speed at which the e-books are displayed and scrolled according to the detected movement of the portable terminal is greater than the speed at which the e-books are displayed and scrolled according to the detected inclination of the portable terminal; and

displaying, when a rotation of the portable terminal is detected, different categories of e-books, which are not displayed on the display unit of the portable terminal when the rotation of the portable terminal is detected, according to a direction of the detected rotation of the portable terminal.

17. The method as claimed in claim **11**, further comprising enlarging the touched category,

wherein the enlarging of the touched category and the displaying of the at least one of the one or more e-books included in the enlarged category comprises:

displaying, when a single touch of the corresponding category or a title of the corresponding category is detected, a list of e-books included in the single-touched category; and

displaying, when an e-book is selected from the list of e-books, the selected e-book through an execution of an e-book viewer.

18. The method as claimed in claim **11**, further comprising displaying and scrolling, when a shift of the portable terminal is detected during the displaying of the at least one of the one or more e-books included in the detected category, through different categories of e-books, which are not displayed on the display unit of the portable terminal when the shift of the portable terminal is detected, according to a direction of the detected shift of the portable terminal.

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